

REMARKS

Reconsideration is requested in view of the above amendments and the following remarks. Claims 2 and 12 have been canceled without prejudice and disclaimer. Claim 1 has been amended to incorporate the limitations recited by claim 2. The amended claim 1 is supported by Figures 1-2. Claims 1 and 3-11 are pending in the application.

Claims 1, 2, 4, and 11 are rejected as anticipated by Wollbeck et al. (US 4480683). Applicant respectfully traverses this rejection.

Claim 1 is directed to a heat exchanger comprising tubes, an inlet as well as a first outlet and second outlet. A second fluid, introduced by the inlet and discharged by the first and second outlets, passes over surfaces of the tubes. Claim 1 further requires a third sealing member to restrict the flow of the second fluid to be in a third sealing member located between a first and second sealing member, and to be in a columnar shape with an axis extending from the center of the inlet to the center of the outlet.

Wollbeck et al. recites an arrangement for heat and/or mass transfer with hollow fiber modules and liquid connections. Even if the hollow fiber modules, gaskets and liquid connections may be analogous to the tubes, the sealing members and the inlet and the outlet in the current invention, Wollbeck et al. fails to disclose a flow path for the second fluid as required by claim 1. In Wollbeck et al., the flow path for the second fluid is not formed in a gasket that is located between two other gaskets. Neither does the flow path have a columnar shape with an axis extending from the center of one liquid connection to the center of another. Therefore, Wollbeck et al. does not teach or suggest every element of claim 1, and claim 1 is not anticipated by Wollbeck et al.

Claims 3-4 and 11 are also not anticipated by Wollbeck et al. at least by virtue of their dependence on Claim 1.

Claims 3 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wollbeck et al. in view of Otten (US 3422884). Applicants respectfully traverse this rejection.

Otten fails to remedy the deficiency of Wollbeck et al. Otten is directed to a tube bundle with horizontal rows of tubes aligned in a repetitive pattern. Otten also fails to teach or suggest the feature that a flow path for a second fluid is formed within a third

sealing member in a columnar shape. Thus, even if Wollbeck et al. and Otten could be combined, which the Applicant does not concede, the combination fails to arrive at the features of claim 3. Consequently, claim 3 does not follow from above references.

Moreover, the features of claim 3 can provide an advantage that is not recognized by the prior art. Forming the flow path for the second fluid in a columnar shape with an axis extending from the center of the inlet to the center of the outlet allows the second flow to cross over surfaces of the tubes laterally. As a result, the second fluid can pass the flow path smoothly, and consequently, achieves effective heat exchange between the first fluid and the second fluid. In addition, the required shape of the flow path also effectively suppresses the occurrence of thrombus at the flow path when the second fluid is blood. As discussed above, none of the cited references discloses or suggests a columnar-shaped flow path for second fluid formed in a sealing member. For at least the foregoing reasons, claim 3 is nonobvious and patentable.

In view of the above, favorable reconsideration in the form of a notice of allowance is respectfully requested. Any questions regarding this communication can be directed to the undersigned attorney, Douglas P. Mueller, Reg. No. 30,300, at (612) 455-3804.

Respectfully submitted,

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